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EXAMINER

TALBOT, BRIAN K

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**BEFORE THE BOARD OF PATENT APPEALS
AND INTERFERENCES**

Application Number: 10/733,136
Filing Date: December 11, 2003
Appellant(s): WU ET AL.

MAILED
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GROUP 1700

Zosan S. Soong
For Appellant

EXAMINER'S ANSWER

This is in response to the appeal brief filed February 28, 2007 appealing from the Office action mailed September 5, 2006.

(1) Real Party in Interest

A statement identifying by name the real party in interest is contained in the brief.

(2) Related Appeals and Interferences

The examiner is not aware of any related appeals, interferences, or judicial proceedings which will directly affect or be directly affected by or have a bearing on the Board's decision in the pending appeal.

(3) Status of Claims

The statement of the status of claims contained in the brief is correct.

(4) Status of Amendments After Final

The appellant's statement of the status of amendments after final rejection contained in the brief is correct.

(5) Summary of Claimed Subject Matter

The summary of claimed subject matter contained in the brief is correct.

(6) Grounds of Rejection to be Reviewed on Appeal

The appellant's statement of the grounds of rejection to be reviewed on appeal is correct.

(7) Claims Appendix

The copy of the appealed claims contained in the Appendix to the brief is correct.

(8) Evidence Relied Upon

6,262,129	Murray et al.	07-2001
6,348,295	Griffith et al.	02-2002
6,103,868	Heath et al.	08-2000

Hawley's Condensed Chemical Dictionary, pg. 1033, Eleventh Edition 1987.

(9) Grounds of Rejection

The following ground(s) of rejection are applicable to the appealed claims:

Claim Rejections - 35 USC § 103

Claims 1-25,30 and 31 are rejected under 35 U.S.C. 103(a) as being unpatentable over Griffith et al. (6,348,295) in combination with Heath et al. (6,103,868) or Murray et al. (6,262,129).

Griffith et al. (6,348,295) teaches method for manufacturing electronic elements by thin-film forming methods. Colloidal suspension of nanoparticles that exhibit electrical characteristics. The nanoparticles are surrounded by an insulative shell that may be removed by therefrom by application of energy including heating while the nanoparticles are fused (abstract). The layer may be a continuous film or a desired pattern. The size of the nanoparticles range from 1 nm - 999 nm and may be conductive or semiconductive (col. 3, lines 10-20). The capping groups include amines, thiols, pyridine, etc. (col. 3, lines 40-60). Griffith et al. (6,348,295) teaches substrates as flexible plastics (col. 1, lines 43-46). Griffith et al. (6,348,295) also teaches that the resistivity of the capping group is 10^9 ohms/cm or more (col. 3, lines 25-35).

Griffith et al. (6,348,295) fails to teach a stabilizer having the claimed boiling point or decomposition temperature lower than 250°C under 1 atmosphere.

Heath et al. (6,103,868) (abstract, col. 3, line 45 – col. 4, line 35 and example 2 (dodecylamine) or Murray et al. (6,262,129) (abstract, claims, and col. 6, line 5 – col. 10, line 35)

both teach stabilizers for nanoparticles which have decomposition or boiling points in the claimed range (200°C-300°C). It is noted that some of the claimed stabilizers disclosed are recited in the instant application.

Therefore it would have been obvious for one skilled in the art at the time the invention was made to have modified Griffith et al. (6,348,295) process by substituting one known stabilizer for another as evidenced by Heath et al. (6,103,868) or Murray et al. (6,262,129) with the expectation of achieving a stable solution by reducing aggregation and/or precipitation of the nanoparticle solution.

With respect to claims 8,9 and 19-23 Griffith et al. (6,348,295) is silent regarding nanoparticles being metal composites, heating temperatures of less than 250°C and the conductivity of the layer.

While the Examiner acknowledges this fact, Griffith et al. (6,348,295) does teach heating by lasers to remove the capping layer and fuse the nanoparticles to form a conductive layer. It is the Examiner's position that one skilled in the art at the time the invention was made would have had a reasonable expectation of achieving similar results regardless of the heating process utilized as long as the capping layer is decomposed and the nanoparticles are fused to form the conductive layer. Also Griffith et al. (6,348,295) teaches "moderate heating" which would be suggestive of the claimed heat temperature (col. 5, line 30-40). Regarding the nanoparticles being metal composites v. metals and the conductivity, it is the Examiner's position that this would be a design choice of one practicing in the art and depends upon the end product desired and therefore is deemed as an obvious modification of the art. Furthermore, one skilled in the art

would have had a reasonable expectation of achieving similar results with either nanoparticle or conductivity desired.

(10) Response to Argument

Appellant argued that the capping layer of Griffith et al. is insulative and not semiconductive as claimed.

The Examiner disagrees. The combination of references teach the same stabilizing agents and nanoparticles and therefore would produce the same claimed “semiconductive” coating even though the reference states an “insulative coating”. While the Examiner acknowledges the fact that Griffith et al. (6,348,295) states an “insulative capping layer”, as noted above the resistivity of the capping layer falls within the range of being “semiconductive” as defined by (Hawley's Condensed Chemical Dictionary, page 1033, Eleventh Edition 1987).

In addition, Appellant is attacking the references individually. Pointing out the differences between the reference and each individual reference is not sufficient to over come a rejection based on a combination of the references. One cannot show non-obviousness by attacking references individually where the rejections are based on combinations of references.

In re Keller, 208 USPQ 871 (CCPA 1981); *In re Merck & Co., Inc.*, 231 USPQ 375 (Fed. Cir. 1986). A combination rejection was applied and not argued by Appellant. Heath et al. (6,103,868) and Murray et al. (6,262,129) teach similar stabilizing agents which fall within the claimed boiling point range of 250°C at 1 atmosphere as detailed above and hence as “defined” by Appellant “would produce a “semiconductive” coating as opposed to an insulative coating (see Remarks on 6/20/06). Furthermore, in the case where the claimed ranges “overlap or lie inside ranges disclosed by the prior art” a *prima facie* case of obviousness exists. *In re Wertheim*,

541 F.2d 257, 191 USPQ 90 (CCPA 1976); In re Woodruff, 919 F.2d 1575, 16 USPQ2d 1934 (Fed. Cir. 1990)

Appellant argued that a “semiconductive” property of the capping layer would be inconsistent with the teachings of Griffith.

The Examiner disagrees. Appellant points to a section in the specification which states that “the energy is applied in a desired pattern so that unexposed areas remain insulative while exposed areas exhibit the electrical behavior of the nanoparticle”. This would not be “inconsistent” with Griffith as semiconductive and metal particles are utilized as the nanoparticle and hence a semiconductive coating would not be detrimental to the nanoparticle as suggested by Appellant, especially if the nanoparticle and capping layer are both semiconductive.

(11) Related Proceeding(s) Appendix

No decision rendered by a court or the Board is identified by the examiner in the Related Appeals and Interferences section of this examiner’s answer.

For the above reasons, it is believed that the rejections should be sustained.

Respectfully submitted,


Brian K. Talbot

Conferees:


Timothy H. Meeks


Kathryn Gorgos